The Boston Computer Society

SINCLAIR-TIMEX USER GROUP NEWSLETTER

Volume 2, Issue 12 December 1983

# COMPUTER EDUCATION: FOUR ESSENTIAL ELEMENTS

by Greg Coffin

Out of the kaleidoscope of microcomputers in schools, one fact comes into focus -- a successful education program requires four essentials:

1. An enthusiastic, knowledgeable teacher;
2. Clear, logical, well written teaching material, that is, units and lesson plans;
3. High quality software and documentation designed or adapted for the grade level at which it is being used;
4. Hardware capable of achieving the specified objectives.

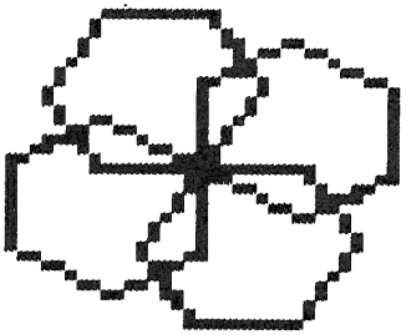
These elements are listed deliberately in descending order of importance. Contrary to some opinions about self-learning on the computer, the teacher is the essential element. Some children given sufficient time on the

LITERACY page 6

Jim Fields conducting Computer Literacy Seminar at recent Timex Sinclair Celebration.

## DECEMBER GROUP MEETING

Wednesday, December 14, 1983
7:00 p.m.
Small Science Auditorium
UMass Harbor Campus
(Directions inside)



# NOVEMBER HIGHLIGHTS

With Will Stackman moderating, the meeting began with a few words from Cliff Danielson and Jack Hodgson about the newsletter. Jack once again invited all comers to get involved with all aspects of creating this publication.

John Kemeny spoke briefly about the TS/ZX T-shirts he's selling, these designer shirts with their distinctive "Don't judge a computer by its keyboard" emblem on the front are still available. Over 2 dozen are left of all sizes except small. Contact John at the meetings or by mail at 284 Great Road, Apt. D5, Acton, MA 01720.

Sue Mahoney made a few comments about the October Celebration

HIGHLIGHTS page 10

## 10 REM

Well, another month another newsletter. As you can see this month's issue cintains more art (pictures and graphics) than last month. This new mix of text and art is what we're gonna shoot for from now on.

Sales of the new Timex Color Computer (TS2068) seem to be good. Although retailers are only able to get a small number of machines they seem to sell them all as quick as they get them. Most retailers seem to be enthusiastic about the computer and are trying to reorder in time for Christmas.

According to Popular Science Magazine, Sinclair's flat screen TV has recently been introduced in Great Britain. The set, which has a black and white screen measuring 4 1/4 by 1 3/4 inches, sells in GB for the equivilent of $120. Sir Clive ( Sir Uncle Clive? Uncle Sir Clive?) says that it could sell for "well under $100" when it's introduced in the U.S. in 1984.

Our hearts go out to Charles Warner or Games To Learn By (one of the few New England retailers carrying the TS2068 so far) who, on the occasion of our last user group meeting, spent the entire evening roaming the halls of UMASS looking for us. He evidently passed by our door more than once while we were in there but never managed to look in at the right times. He may try again in December. Good Luck Charles.

A new item this month is a column called POINTERS. This monthly feature will be a question and answer forum to deal with the problems of the beginning computer user. If you know of something that ought to be covered or have a a problem you'd like explained don't hesitate to contact Mr. Diamond or myself at the meeting or write.

I've been getting some good response from the members concerning more participation in this newsletter. This is good but don't stop now. The more input (sorry) contributions we get the better. Keep it up. ( Just to let you know how serious this subject is: the BCS's Atari User's Group just discontinued its newsletter because of group apathy.)

We are currently in the process of selecting articles from the past year to appear in a "Best of the Sinclair Times Newsletter". The "Best of..." will contain things such as Dave Wood's Hex Assembler, the routine to emulate the READ-DATA -RESTORE commands of other BASICS and other items of continuing interest. If you have any favorites from the past issues that you'd like to see included let me know. Watch for this "Best of..." collection in the Spring (maybe late winter).

A final note:

The possibly fatal flaw of the "electronic office" is that you can never find a pencil when you need one.

— JGH III

# The Boston Computer Society

This newsletter is produced to inform group members of the agenda and logistics of future meetings, as well as to recap and amplify the information provided at the meetings. It also provides a forum for members and interested parties to communicate what thay have learned or developed relating to Sinclair and Timex computing. Meetings are open to the public (non-member admission is $3); however attendees are encouraged to join the Boston Computer Society (BCS) This newsletter is free to members. Back issues are one dollar each.

DIRECTIONS TO MEETING: The S-T User Group meets in the Large Science Auditiorium (Room 8/2/009) of the University of Massachusetts, Boston Harbor Campus. It is located only 3 miles from downtown Boston and easily accessible by public and private transportation. From the north or west, take the Southeast Expressway to Exit 17.

Turn left onto Columbia Road. Follow construction signs to get to Morrissey Boulevard in the direction of UMASS and the Kennedy Library. Bear right on traffic island, get in the right two lanes, following UMass/Boston signs. Turn left at the light into Campus. From the south, take Morrissey Boulevard northward to the campus. On the MBTA, take the Red Line (Ashmont Train) to Columbia Station. Transfer to the free University shuttlebus in the T parking lot.

The Sinclair Timex User Group

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The Sinclair Timex Newsletter is published monthly by the Sinclair Timex User Group of the Boston Computer Society. Membership in the BCS is $24 per year which includes a subscription to its magazine "The Computer Updata" and subscription to two of its group newsletters (such as this one).

Advertising space is available in this publication on a limited, first come first served basis. The rate is $60 per quarter page. At this time no other ad sizes are available. For detailed rate and discount information contact the Advertising Manager or the Publisher.

## Tiny Logo

by Will Stackman

LOGO, a procedural language based on the "artificial intelligence" language LISP, used at MIT, has gained considerable acceptance as a way of teaching the concept of computer programming to young children. Its value may be over-stated by teachers who prefer demonstrating its graphic capabilities to dealing with the less-interesting and more cumbersome details of BASIC. Tiny LOGO, as currently available for the TS1000/1500, is a subset of an early implementation of the larger language which emphasizes its "turtle" graphic elements. As a 16K program even a limited LOGO might offer a chance for its use in settings where expensiove computing is not available. This version is, however, too limited to be of much use.

Tiny LOGO is written entirely in BASIC, and its listing reveals several ingenious programming methods. The resulting language, which might be labelled a LOGO simulation, is very slow and jumpy, due to the use of the FAST mode for computation and SLOW for plotting. At 40+ x 60+, the Sinclair BASIC plotting screen is too course to draw attractive or even accurate geometric designs, thus thwarting the major allure of LOGO. The same program, using a Hi-Res plot on the 2068 would be a lot more attractive, though still too slow.

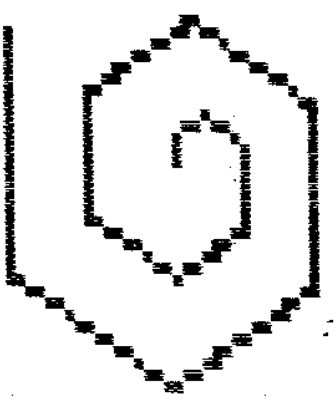
This implementation needs pruning plus a number of machine code routines to handle its display before it will become more than a curiosity. Tiny LOGO could be used, with a little practice, to give demonstrations of LOGO and its procedural principals, as long as designs were chosen carefully. It is possible to BREAK into BASIC by entering a bad command and use COPY to get a printout of the screen. Then

```
TO BOX
FORWARD 15
RIGHT 90
FORWARD 15
RIGHT 90
FORWARD 15
RIGHT 90
FORWARD 15
END
```

the program is recovered by entering LET DEPTH = 0 and GOTO 400. Removal of overlength variable names like DEPTH plus a host of REM's would reduce this listing by 500 bytes.

Fans of BASIC programming will appreciate the way string slicing is used to handle commands. Those who dislike error messages will want to devise more error checking within the program. Its propensity to crash, coupled with its ugly display make it virtually useless with young children, though a fifth grade

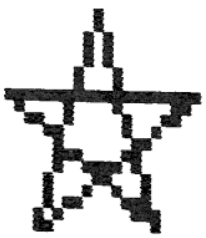
```
TO SPIRAL LANGLE LEDGE
FORWARD LEDGE
RIGHT LANGLE
SPIRAL LANGLE LEDGE+1.5
END
```



hacker, pining for an Apple, would probably find it a challenge. There are no text or list handling facilities to speak of.

All three copies available were hard to load. The tape headers were noisy and the levels uneven. The documentation is minimal, but sufficient if you

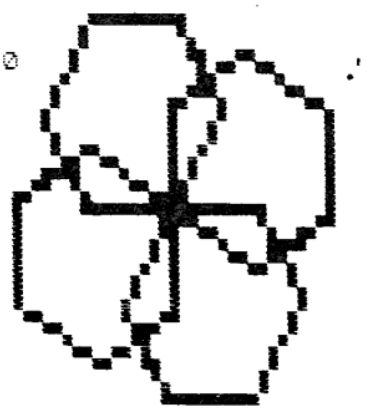
```
TO STAR
RIGHT 18
FORWARD 20
RIGHT 144
FORWARD 20
RIGHT 144
FORWARD 20
RIGHT 144
FORWARD 20
RIGHT 144
FORWARD 20
END
```



have a nodding aquaintance with LOGO or another procedural language. Most LOGO books are specific to particular implemenations, but might prove helpful. We are still waiting for a LOGO, especially the less graphic elements, which properly implemented might prove useful for word processing and other text manipulations.

Available from GLADSTONE ELECTRONICS, Buffalo. Current list $14.95. Released by International Software & Publishing.

```
TO FLOWER
REPEAT 4
(
HEX
RIGHT 60
)
END
```



## VP ROSS RELEASED BY TIMEX

Dec. 5 --Dan Ross, Timex Marketing Vice President and national spokesman for the Timex Sinclair Computer line, was released from his post late last week. Ross, a longtime veteran of the computer industry, was said to be surprised and shaken by the sudden action.

Unofficial sources within Timex say that Ross will remain with the company for the next two months as a consultant and that this move is part of yet another structural reshuffling of this international company's computer operation.

LITERACY continued

machine and suitable software, can learn by themselves; but most children need guidance, regardless of the level of intensity, if they are to achieve their maximum potential.

The teacher must be knowledgable about the subject matter. They need not be a computer scientist, a programmer, or a computer linguist to teach fifth-graders how a computer works. But they do have to know how fifth-graders learn -- and more about how computers work than what they plan to teach their class.

To be effective, teachers must be enthusisatic, especially about their particular subject matter. A computer, however, needs an additional dimension: enough enthusiasm to motivate them to read as much as is needed to stay abreast of new developments in this burgeoning field. The teacher must be aware of the best sources of information and have regular access to them in order to keep pace with rapidly changing developments. Much could be written about the requirements for effective teaching; my point here is simply that the teacher is and will remain the most important element in the four-part mix.

The second element is teaching material, prepared by whoever is going to use it. Styles are highly individual; as Gilbert Highet said long ago, "Teaching is an art, not a science." Of course the teacher must be familiar with and possess a wide range of published material; this is an essential tool of the trade. However, having decided upon objectives, the teacher must personally develop the

Judy Field, teacher at Timilty Middle School in Boston demonstrating the TS1500 to students from her schools.

units and daily lesson plans necessary to achieve them. After this has been done, the teacher's own material can be revised, updated, and edited and material from others can be borrowed or adapted. Over time a substantial reservoir of personal resources will be accumulated. And, just as the teachers themselves are different, the resources they select will be different.

The third ingredient for effective computer teaching is quality software. Teachers must learn how to judge software; they must know what is on the market at any given time and how and where to preview it to see if it meets their specific needs. Reading software reviews -- most of which are biased to some degree -- is not enough. Risking $9.95 for a Timex Sinclair tape may not seem too bad compared with $95.95 for an Apple disk. But the $9.95's can add up fast when one considers the flood of materials coming on the market weekly!

Unfortunately, although the programs represent effort on the part of the programmer, most of

them are "junk," at least for serious educational applications. "Buyer beware" is a slogan, and, if possible, teachers should try out the software before purchasing it. This applies to documentation as well, for rewriting documentation can be a long, laborious process.

The final significant element of a computer education program is hardware. A popular entertainer would have you believe that the brand name of the computer is the primary consideration, when, in fact, the situation is analogous to selecting an automobile. You can get from Boston to New York in a Volkswagen or a Cadillac in the same amount of time. One provides more creature comfort, but you pay for it. The same is true of microcomputers. Every microcomputer has its fan club whose members can recite a litany of reasons in praise of their favorite. But the over-riding question should be: What do I want to accomplish with this teaching tool? If the answer is relatively simple and unsophisticated, then the machine should match it. You don't NEED a Cadillac to go from New York to Boston!

The author and associate Maria Trozzi speaking with Cliff and Carol Danielson and their children Cora and Alan.

Of the four elements essential to a computer education program, the teacher is the most important by far. Don't let Madison Ave. deceive you.!

## COMPUTER LITERACY IS A HIT AT TIMEX SINCLAIR CELEBRATION

Greg Coffin and his staff were present at our group's October Birthday Celebration with one of the most popular exhibits there.

Throughout the day the Dartmouth/Exeter Rooms were the scene of ongoing demonstrations and seminars on teaching computer literacy. In attendance were individuals of all ages listening to Greg and associates, Maria Trozzi and Judy Fields, discuss how to use computers and how to teach how to use computers.

Their exhibition was based on their experiences teaching computer literacy in the Boston Public Schools and at Northeastern University.

Other exhibits at the celebration were involved with this field as well. The very popular booth operated by our group's machine language subgroup was the scene of almost constant attention by attendees interested in the more advanced aspects of computer use (see this sub group's highlights on page 11).

ed. note: Will insists that the rules of this game are self-explanatory, we'll see.

## HIDDEN MAZE
## a game for the TS1000/1500

submitted by Will Stackman

Comments:

This game is adapted from Bill L. Behrendt's "Maze", from "30 Games", Micro Text Publications, NY 1983.

The program is a good example of Sinclair's ability to handle strings in a unique and flexible way.

For 1K machines, remove title and replay routines. Reduce variable names, and enter initial values for MOVE, SCORE, X, and Y and reduce maze itself to 8 lines.

Line 40 - RAND can take a "seed". This formula gives good results with this string (M$(M)) array.

Lines 90-180 These graphic strings can be modified to make the maze harder (if not impossible). Line 40 may also need to be changed.

Improvements might include inverting maze field, use grey graphics and white spaces in M$ strings. The field could be as large as 18x32.

WS

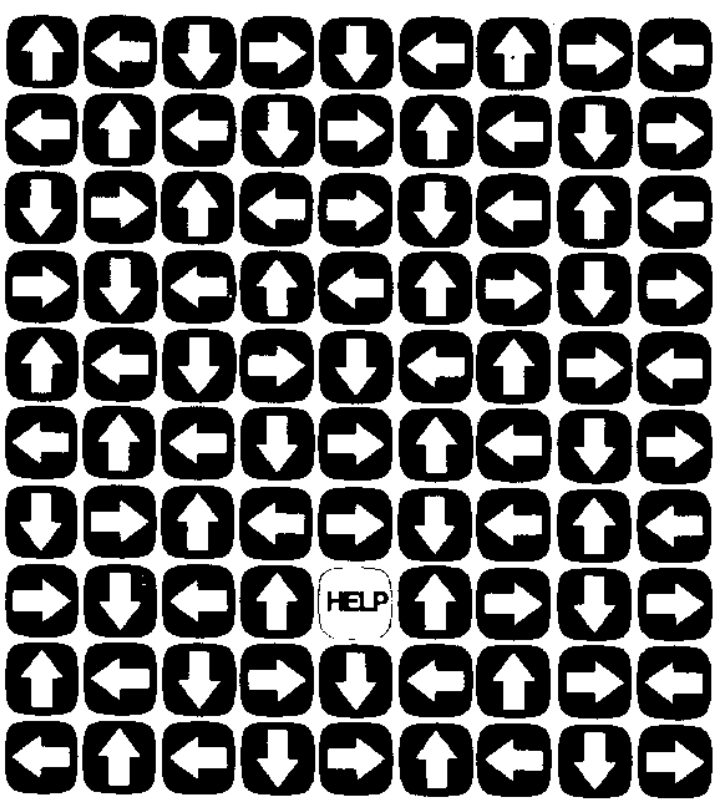
```
POSITION 1 X 7
N,S,E, OR W?
*YOU GOT OUT*
SCORE=31
  AGAIN? Y/N
```

SAMPLE MAZE RUN, COULD BE MADE MORE DIFFICULT.

---

```
  10 PRINT AT 10,8;"HIDDEN MAZE
10 X 15        FIND YOUR WAY OUT.
 HEAD NORTH."
  20 PAUSE 120
  30 CLS
  40 RAND INT (RND*20)+1000
  50 DIM M$(10,15)
  60 LET MOVE=0
  70 FOR M=1 TO 10
  80 LET R=INT (RND*10)+1
  90 IF R=1 THEN LET M$(M)="
 100 IF R=2 THEN LET M$(M)="
 110 IF R=3 THEN LET M$(M)="
 120 IF R=4 THEN LET M$(M)="
 130 IF R=5 THEN LET M$(M)="
 140 IF R=6 THEN LET M$(M)="
 150 IF R=7 THEN LET M$(M)="
 160 IF R=8 THEN LET M$(M)="
 170 IF R=9 THEN LET M$(M)="
 180 IF R=10 THEN LET M$(M)="
 190 NEXT M
 200 LET X=10
 210 LET Y=5
 220 PRINT AT 0,12;"          "
 230 PRINT AT 0,0;"POSITION ";X
;" X ";Y
 240 PRINT AT 1,0;"N,S,E, OR W?"
 250 INPUT C$
 260 IF C$="N" THEN LET X=X-1
 270 IF C$="S" THEN LET X=X+1
 280 IF C$="E" THEN LET Y=Y+1
 290 IF C$="W" THEN LET Y=Y-1
 300 IF X>10 THEN GOTO 220
 310 IF (Y<1) OR (Y>15) THEN GOT
O 220
 320 IF X<1 THEN GOTO 420
 330 LET MOVE=MOVE+1
 340 PRINT AT X+5,Y+5;M$(X,Y)
 350 IF M$(X,Y)="" THEN PRINT A
T 20,0;"BLOCKED"
 360 IF M$(X,Y)(Y)="" THEN PRINT
AT 20,0;"
 370 IF M$(X,Y)="" THEN IF C$="
N" THEN LET Y=X+1
```

```
  380 IF M$(X,Y)="■" THEN IF C$="
S" THEN LET X=X-1
  390 IF M$(X,Y)="■" THEN IF C$="
E" THEN LET Y=Y-1
  400 IF M$(X,Y)="■" THEN IF C$="
U" THEN LET Y=Y+1
  410 GOTO 220
  420 PRINT "*YOU GOT OUT*"
  430 LET SCORE=INT ((10/MOVE)*10
0)
  440 PRINT "SCORE=";SCORE
  450 PRINT "  AGAIN? Y/N"
  460 INPUT Y$
  470 IF Y$="Y" THEN GOTO 30
  480 CLS
  490 PRINT AT 10,10;"■T.T.F.N.■"
  500 STOP
  510 SAVE "MAZX■"
  520 GOTO 10
  530 STOP
 9990 LET B=16509
 9991 PRINT "ENTER LINE INCREMENT
"
 9992 INPUT N
 9993 POKE B,INT (N/256)
 9994 POKE B+1,N-256*INT (N/256)
 9995 LET N=N+10
 9996 LET B=B+1
 9997 IF 256*PEEK B+PEEK (B+1)=99
90 THEN STOP
 9998 IF PEEK (B-1)=118 THEN GOTO
 9993
 9999 GOTO 9996
```






## THE NEW TS1500 ROM

by Dave Wood

The ROM in the new TS1500 is slightly different from that in the old TS100. Sixty-one bytes have been changed at the following hex addresses: 0002-0004; 0006; 0362; 03C6-0401; 16BC; 18D0.

The changes introduced are
1) Different power-up initialization.
2) Fix of the reknowned LPRINT bug (see May-June newsletters)
3) Fix of an obscure bug in the least significant bit in division (see last month)

Two procedural changes are introduced in initialization. First, because the TS1500 is configured with 16K RAM, there is no check of the amount of RAM. It is assumed to be 16K, and all 16K is cleared to zeroes. Second, in order to provide for cartridge power-up, the contents of memory location 2000h (8192 decimal) is checked.

If it contains a 1, then a jump is made to 8192:

```
03DA    LD HL, 2000h
        DEC (HL)
        JR NZ, 03E2h
        JP (HL)
03E2    ...
```

This latter process could be disasterous if you have RAM at 8192 and it contains a 1. On the other hand this is a handy way to bypass the system ROM at power-up.

Another possibly significant change is that memory locations 407B/C hex (16507 dec.), which used to contain zeroes (unused) are now loaded with the address of the front of BASIC (407Dh = 16509d)

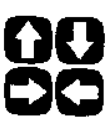
## POINTERS
by Jacob Diamond

Q: What is a self-running program and how can I make my programs self running?

A: Self-running programs are just what they say, programs that, after you've loaded them from tape automatically "run". You don't need to type the command "run" to get started. The main advantage to this type of thing is that it that it helps to protect any variables that have been loaded for use in the program. Because the T/S computers will erase these variables if the program is started with the command "run" self-running will help avoid the problem. Self running programs also present a more attractive and "user friendly" package for a pgm. The user needs only to follow the directions, that can appear on the screen, to use a pgm.

You can make your program self running by including, near the end of the listing, the lines 9000 SAVE "program name" 9010 GOTO 1. Then you save the program by starting the recorder as usual and then typing, instead of SAVE, GOTO 9000. When you load this program back into the computer later, the machine will pick up with line 9010 and keep running.

Send your questions about any aspect of personal computing to: POINTERS, S-T Newsletter, PO Box 526, Cambridge, MA 02238.



HIGHLIGHTS continued

and renewing your BCS membership: current BCS members can renew until the first of the year for $20, after that $24.

Dick Forsythe gave a very interesting presentation on tape recorder maintenance and Will Stackman gave a presentation and review of the Tiny Logo language, see his article in this issue.

The main event of the evening was a presentation by Dick Govatski of Memotech, Inc. He spoke about their line of TS/ZX peripherals and their commitment to "continue to support our TS customers. Over 35,000 of them," even though they have "no plans to add onto the TS line." He did say though they may release some new software on eprom ( cartridges).

## SUMMING UP THE 1500
by Cliff Danielson

Since the introduction of the TS1500, I've been busy trying to determine the differences between it and the ZX81 (TS1000). Well, recently I've completed a checksum of all the bytes in the TS1500 ROM. If you check past newsletters, you will find that the checksum for the ZX81 ROM is 855106. The sum for the new computer is 854417, i.e., 689 less than that of the '81. In order to achieve this lower total, Timex reduced the number of bits set (bits equal to one) by thirty (62 bytes have been changed). Do you think this might have something to do with the low price of the new machine?

## Book Review CONVERTING TO TIMEX SINCLAIR BASIC

by Stuart L. Bird
review by Will Stackman

If you have looked longingly at the volumes of listings published for other BASICs which are accumulating in our public libraries, or if you have racked your brain converting from extended BASIC for the TRS-80, for example, into Sinclair BASIC, get this book and rejoice.

A bit of study will allow you to simulate commands and functions not included in the Sinclair instruction set by replacing them with ingenious subroutines.

Most of these short programs are based on manipulating Sinclair BASIC's amazing string functions, plus the ease with which POKEs and PEEKs can be included in a TS BASIC program. READ, DATA, RESTORE are of course treated in detail, but there are also extensive graphic handling routines, including a demonstration of "turtle" graphics. You will also discover some of the more peculiar commands which have been included in specialized BASICs, some of which incorporate unique programming ideas. If you can't find this volume in the bookstore order it from Wayne Green Publishing, Peterborough, NH 03458, $14.95 + shipping, or call 603-924-9471.

## MACHINE CODE GROUP HIGHLIGHTS

The Machine Code subgroup experienced a surge of growth in November with membership virtually doubling.

The main event of the evening was a presentation/discussion by Dave Wood about the changes to the operating system of the newly released TS1500 computer. Details of those changes can be found in Dave's article on page 9.

Leader Bob Heath demonstrated a new utility called Memory Scope and presented his proposal for a series of group software projects which was dubbed Project Dazee.

This subgroup meets on the first Wednesday of the month at Itek Optical in Lexington. For details and directions call Bob at 276-2424.

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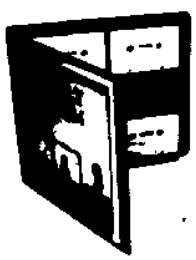

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